

CLAIMS

1. A system, comprising:

5 a water supply;

at least one pipe in communication with said water supply, wherein
said at least one pipe comprises a tubarc porous microstructure for
conducting said water from a saturated zone to an unsaturated zone, wherein
10 said water supply comprises a saturated zone; and

wherein said water is delivered from said saturated zone to said
unsaturated zone through said tubarc porous microstructure, thereby
permitting said water to be harnessed for irrigation through the hydrodynamic
15 movement of said water from one zone of saturation or unsaturation to
another.

2. The system of claim 1 wherein said unsaturated zone comprises soil
located about said at least one pipe, such that a high water matric gradient
20 associated with said soil surrounding said at least one pipe attracts
unsaturated water from a wall of said pipe, which comprises said tubarc
porous microstructure in order to irrigate said soil.

3. The system of claim 1 further comprising at least one variable speed
25 reversible pump for initially pushing said water to said at least one pipe to
establish molecular connectivity for said water within said tubarc porous
microstructure.

4. The system of claim 1 further comprising at least one variable speed

pump for pulling said water to said at least one pipe to establish molecular connectivity for said water within said tubarc porous microstructure.

5 5. The system of claim 1 further comprising at least one other pipe comprising a tubarc porous microstructure for distribution of said water from said water supply to at least one other zone of saturation or unsaturation to another.

10 6. The system of claim 1 wherein said water is reversibly transportable from said saturated zone to said unsaturated zone and from said unsaturated zone to said saturated zone utilizing said tubarc porous microstructure.

15 7. The system of claim 1 wherein said water is hydrodynamically transportable through said tubarc porous microstructure according to a gradient of unsaturated hydraulic conductivity.

20 8. The system of claim 1 wherein said water is conductible through said tubarc porous microstructure in a reversible longitudinal prevailing unsaturated flow.

9. The system of claim 1 wherein said water is conductible through said tubarc porous microstructure in a reversible lateral unsaturated flow.

25 10. The system of claim 1 wherein said water is conductible through said tubarc porous microstructure in a reversible transversal unsaturated flow.

11. A system, comprising:

 a water supply;

at least one pipe in communication with said water supply, wherein
said at least one pipe comprises a tubarc porous microstructure for
conducting said water from a saturated zone to an unsaturated zone, wherein
5 said water supply comprises a saturated zone;

wherein said water is delivered from said saturated zone to said
unsaturated zone through said tubarc porous microstructure, thereby
permitting said water to be harnessed for irrigation through the hydrodynamic
10 movement of said water from one zone of saturation or unsaturation to
another;

soil located about said at least one pipe, wherein said soil comprises
an unsaturated zone, such that a high water matric gradient associated with
15 said soil surrounding said at least one pipe attracts unsaturated water from a
wall of said pipe in order to irrigate said soil; and

at least one variable speed reversible pump for initially pushing or
pulling said water to said at least one pipe to establish molecular connectivity
20 for said water within said tubarc porous microstructure.

12. The system of claim 11 further comprising at least one other pipe
comprising a tubarc porous microstructure for distribution of said water from
said water supply to at least one other zone of saturation or unsaturation to
25 another.

13. The system of claim 11 wherein said water is reversibly transportable
from said saturated zone to said unsaturated zone and from said unsaturated
zone to said saturated zone utilizing said tubarc porous microstructure.

14. The system of claim 11 wherein said water is hydrodynamically transportable through said tubarc porous microstructure according to a gradient of unsaturated hydraulic conductivity.

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15. The system of claim 11 wherein said water is conductible through said tubarc porous microstructure in a reversible longitudinal prevailing unsaturated flow.

10 16. The system of claim 11 wherein said water is conductible through said tubarc porous microstructure in a reversible lateral unsaturated flow.

17. The system of claim 11 wherein said water is conductible through said tubarc porous microstructure in a reversible transversal unsaturated flow.

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18. A system, comprising:

a saturated zone;

20 at least one pipe in communication with said saturated zone, wherein said at least one pipe comprises a tubarc porous microstructure for conducting water from said saturated zone to an unsaturated zone in order to drain said water from said saturated zone; and

25 wherein said water is delivered from said saturated zone to said unsaturated zone through said tubarc porous microstructure, thereby permitting said water drained through the hydrodynamic movement of said water from one zone of saturation or unsaturation to another.

19. The system of claim 18 wherein said water is reversibly transportable from said saturated zone to said unsaturated zone and from said unsaturated zone to said saturated zone utilizing said tuberc porous microstructure.
- 5 20. The system of claim 18 wherein said water is hydrodynamically transportable through said tuberc porous microstructure according to a gradient of unsaturated hydraulic conductivity.